

[0023] Having thus described the preferred embodiment, what is claimed is:

1. In an agricultural tractor with ground-supporting wheels driven by a hydrostatic pump with a control servo and a hitch for a towed trailer, said tractor including:

- a service brake for slowing and stopping the rotation of ground-supporting wheels;
- a forward/neutral/reverse lever connected to and controlling the hydrostatic pump;
- the improvement comprising:
  - (a) a sensing device for sensing that the service brake has been actuated;
  - (b) a control device connected to the control servo of the hydrostatic pump, said control device capable of actuating the control servo from a first position corresponding to either a forward or reverse movement position of the forward/neutral/reverse lever as determined by an operator to a second position corresponding to the neutral position of the forward/neutral/reverse lever;
  - (c) a signal transfer device interconnecting said sensing device and said control device whereby actuation of the service brake is sensed by said sensing device and a signal transferred by said signal transfer device to said control device, moving the servo control from said first position to said second position, stopping the rotation of the ground-supporting wheels.

2. The agricultural tractor of Claim 1, further including:

- a return device connected to said sensing device and said control device to return the control servo to said first position when the service brake is no longer actuated.

1 3. The agricultural tractor of Claim 2, wherein:  
 2 said sensing device comprises a service brake pedal attached to a  
 3 pivoted bell crank and a service brake master cylinder such that actuation of said  
 4 service brake pedal causes said bell crank to pivot about a pivot point;  
 5 said control device comprises a mechanically actuated cartridge valve  
 6 integral with the hydrostatic pump control servo; and  
 7 said signal transfer device comprises a cable mechanism.

1 4. The agricultural tractor of Claim 3, wherein:  
 2 said return device is a tension spring.

1 5. The agricultural tractor of Claim 4, wherein:  
 2 said bell crank pivot point is below the <sup>112</sup>force vector of said service brake  
 3 pedal and the connection point between said cable mechanism.  
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1 6. The agricultural tractor of Claim 5, wherein:  
 2 said cable mechanism includes a cable connected at one end to said  
 3 cartridge valve and to said tension spring at the other, said tension spring  
 4 interconnecting said cable and said bell crank.

1 7. The agricultural tractor of Claim 6, wherein:  
 2 said cartridge valve has a shunt distance of travel to fully destroke to  
 3 neutral, and an initial valve opening force;  
 4 said tension spring is set to an initial tension greater than said valve  
 5 opening force; and  
 6 the travel of said bell crank is greater than said shunt distance of travel,  
 7 whereby said cartridge valve opens fully while allowing said bell crank to move its  
 8 full travel.

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- 1 8. The agricultural tractor of Claim 7, further including:  
2 a hydraulic hookup for interconnecting hydraulic brakes on the trailer with  
3 the service brake whereby actuation of the service brake also engages the  
4 hydraulic brakes on the trailer.
- 1 9. The agricultural tractor of Claim 2, wherein:  
2 said hydrostatic pump and said control servo are electronically controlled;  
3 said sensing device comprises a service brake pedal attached to a  
4 pivoted bell crank and a potentiometer connected to said bell crank;  
5 said control device comprises a programmable microcontroller that  
6 receives a signal from said potentiometer when said service brake pedal is  
7 actuated and converts said signal to commands to said hydrostatic pump and  
8 control servo, whereby actuation of said service brake destrokes said hydrostatic  
9 pump.
- 1 10. The agricultural tractor of Claim 9, wherein:  
2 said potentiometer sends a signal to said microcontroller when said  
3 service brake pedal is no longer actuated, said microcontroller then sends  
4 commands to said hydrostatic pump and control servo, returning said hydrostatic  
5 pump to its condition prior to destroke.
- 1 11. An agricultural tractor comprising:  
2 a main frame with front and rear axle assemblies including ground-  
3 engaging wheels;  
4 an operator's platform supported on said main frame;  
5 an engine supported on said main frame;  
6 a hydrostatic pump with a control servo supported by said main frame and  
7 connected to said engine such that said pump receives power from said engine,  
8 said pump also connected to at least one of said front and rear axle assemblies  
9 and providing power thereto;

1 a forward/neutral/reverse lever attached to said hydrostatic pump to  
2 control the direction and speed of the output therefrom;  
3 a service brake for slowing and stopping the rotation of said ground-  
4 engaging wheels;  
5 a sensing device for sensing that said service brake has been actuated;  
6 a control device connected to said control servo of said hydrostatic pump,  
7 said control device capable of actuating said control servo from a first position  
8 corresponding to either a forward or reverse movement position of said  
9 forward/neutral/reverse lever as determined by an operator to a second position  
10 corresponding to the neutral position of said forward/neutral/reverse lever;  
11 a signal transfer device interconnecting said sensing device and said  
12 control device whereby actuation of the service brake is sensed by said sensing  
13 device and a signal transferred by said signal transfer device to said control  
14 device, moving said servo control from said first position to said second position,  
15 stopping the rotation of said ground-supporting wheels.

1 12. The tractor of Claim 11, further including:

2 a return device connected to said sensing device and said control device  
3 to return the control servo to said first position when the service brake is no  
4 longer actuated.

1 13. The agricultural tractor of Claim 12, wherein:

2 said sensing device comprises a service brake pedal attached to a  
3 pivoted bell crank and a service brake master cylinder such that actuation of said  
4 service brake pedal causes said bell crank to pivot about a pivot point;

5 said control device comprises a mechanically actuated cartridge valve  
6 integral with the hydrostatic pump control servo; and

7 said signal transfer device comprises a cable mechanism.

- 1 14. The agricultural tractor of Claim 13, wherein:  
2 said return device is a tension spring.
- 1 15. The agricultural tractor of Claim 14, wherein:  
2 said bell crank pivot point is below the force vector of said service brake  
3 pedal and the connection point between said cable mechanism.
- 1 16. The agricultural tractor of Claim 15, wherein:  
2 said cable mechanism includes a cable connected at one end to said  
3 cartridge valve and to said tension spring at the other, said tension spring  
4 interconnecting said cable and said bell crank.
- 1 17. The agricultural tractor of Claim 16, wherein:  
2 said cartridge valve has a shunt distance of travel to fully destroke to  
3 neutral, and an initial valve opening force;  
4 said tension spring is set to an initial tension greater than said valve  
5 opening force; and  
6 the travel of said bell crank is greater than said shunt distance of travel,  
7 whereby said cartridge valve opens fully while allowing said bell crank to move its  
8 full travel.
- 1 18. The agricultural tractor of Claim 17, further including:  
2 a hydraulic hookup for interconnecting hydraulic brakes on the trailer with  
3 the service brake whereby actuation of the service brake also engages the  
4 hydraulic brakes on the trailer.
- 1 19. The agricultural tractor of Claim 12, wherein:  
2 said hydrostatic pump and said control servo are electronically controlled;  
3 said sensing device comprises a service brake pedal attached to a  
4 pivoted bell crank and a potentiometer connected to said bell crank;

5        said control device comprises a programmable microcontroller that  
6 receives a signal from said potentiometer when said service brake pedal is  
7 actuated and converts said signal to commands to said hydrostatic pump and  
8 control servo, whereby actuation of said service brake destrokes said hydrostatic  
9 pump.

1    20.    The agricultural tractor of Claim 19, wherein:

2        said potentiometer sends a signal to said microcontroller when said  
3 service brake pedal is no longer actuated, said microcontroller then sends  
4 commands to said hydrostatic pump and control servo, returning said hydrostatic  
5 pump to its condition prior to destroke.

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